
South Jersey Transportation Planning Organization

2007 Road Safety Audit

**Buck Road (CR 553)
Pittsgrove Township, Upper Pittsgrove Township
Salem County**



Prepared By:



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In Association with:



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Introduction

Orth-Rodgers & Associates, Inc. (ORA) was selected by the South Jersey Transportation Planning Organization (SJTPO) to conduct their 2007 Road Safety Audit (RSA) program. The sections of roadway to be studied were selected by SJTPO based on a number of factors considered important to the safety and future development of the roadways. Among the factors considered were crash data, traffic volume growth, recent and planned future development along the roadway, and local cooperation and control. Except at the intersection of a state highway with the study roadway, state highways were excluded from the process. County and local officials cooperated with the SJTPO in identifying roads that meet these parameters.

Four roadway sections were chosen for the 2007 audits. Two of the roadways are located in Cape May County; one is in Salem County, and one in Atlantic County. The four roadway sections are:

1. Buck –Centerton Road (CR 553) between the Cumberland County border and the Gloucester County border (MP 26.97-34.78) in the Townships of Pittsgrove and Upper Pittsgrove. This includes a very short section of CR 540 (MP 25.90-25.98)
2. Dennisville-Petersburg Road (CR 610) entire length, between Rt 47 and Tuckahoe Road (CR 631) (MP 0.00- 7.77), in the Townships of Dennis, Woodbine, and Upper, Cape May County.
3. Shunpike Road (CR 620) entire length, between Indian Trail Road (CR 618) and Dias Creek Road (CR 612) in Township of Middle, Cape May County.
4. Fire Road (CR 651), between Tilton Avenue (CR) and Delilah Road (MP 7.91-9.97) in the Township of Egg Harbor, Atlantic County. Additionally a section from Mill Road to Tilton Road (MP 6.67 – 7.91) is to be scanned.

Each studied roadway will have a separate report, but will share basically the same introduction, background section, format and some text.

Safety audits serve to address the safe operation of the roadways and to ensure a high level of safety for all road users. The process of a safety audit is two-fold: 1) to conduct a formal examination of highway features and the surrounding environment that increases the potential for crashes; and, 2) to identify countermeasures that will reduce or eliminate the probability of such crashes. According to the Federal Highway Administration (FHWA), the formal definition of a road safety audit is as follows:

“A Road Safety Audit is the formal examination of an existing or future roadway or traffic project by an independent team of trained specialists.”¹

To accomplish these goals, the audit team assesses the safety performance history as well as the future crash potential of a roadway and prepares a report that documents the safety deficiencies and appropriate countermeasures. The purpose of the 2007 audit is to identify potential safety deficiencies along the selected sections of the four roadways.

There are three primary parts of the audit: 1) the data collection and analysis phase; 2) the field view (conducted by the team); and, 3) the preparation of the report and findings.

The **data collection phase** is performed prior to the audit team conducting a field view of the entire roadway. The data is intended to assist the team in identifying potential safety issues, as well as to provide a factual and historic component of the study. Traffic count and crash data are collected, and a capacity analysis of major intersections is performed. The traffic counts are used to assist in analyzing solutions for the intersections, as well as aid in identifying the most congested sections of the roads. The crash data assists the team in identifying specific areas and/or conditions that warrant close scrutiny that might have otherwise been overlooked. The capacity analysis of intersections identifies how well the intersections are operating and when and where improvements may be needed. Based on an analysis of all of the data, the audit team can conduct a productive and comprehensive evaluation of the roads being studied. A multi-disciplinary team conducts the field view. The team leader then prepares a **draft report** that

¹ Federal Highway Administration, Road Safety Audits and Road Safety Audit Reviews, EDL #12345 FHWA XX-03-999

documents the audits findings and recommended actions. The draft report is distributed to the team members for their review and comments. A final report is then prepared by the team leader incorporating the agreed upon draft report comments.

BACKGROUND INFORMATION

Prior to the audit ORA emailed a list of questions to the county seeking to gather background information on Buck Road (CR 553). The questions asked were:

- Why was the road chosen for the audit?
- What problems exist on the road?
- What areas should be given special attention?
- Has the roadway changed in the last three years?
- Are there any projects pending or anticipated for the roadway and their status?
- Have any of the traffic control devices or regulations been changed in the last three years (i.e., signals, speed limits, etc.)?
- Was there any development on the road in the last three years, or any proposed development on the road or in the area that has or will impact traffic in the future?
- Are any recent traffic counts available?
- Have any recent traffic studies been conducted on the road?
- What plans, if any, are available for the road?
- At what locations should new traffic counts, either turning movement or ATR's be conducted?

The same questions were again asked at the workshop on the day of the audit to ensure that no available data was missing. Since Salem County had already participated in three previous road safety audits, ORA did not schedule a general kick-off meeting. However, a pre-audit

information package was prepared and distributed in advance of the workshop and field view. The package included a brief explanation of what a safety audit is, why safety audits are conducted, and the process involved. It also included charts of three year crash trends, crash occurrence by month, by day of the week, by time of day, by surface condition, by light condition, by crash severity, by crash type, and by closest intersection. All team members were asked to review the information package prior to attending the workshop and audit. Since most of the scheduled team members had already participated in at least one audit, and all stakeholders received the information package, the workshop and field views were scheduled to take place on the same day.

BUCK ROAD (CR 553)

Buck Road (CR 553) is under the jurisdictional control of Salem County. It is designated as a south-north road. The entire length of the road in Salem County was audited. This extends between the Cumberland County corporate line on the southern end to the Gloucester County corporate line on the northern end. The road is classified as an urban collector from the Cumberland County line to just north of McKishen Road (MP 27.5-29.7). From just north of McKishen Road to the Gloucester County line (MP 29.7-34.7) it is classified as a rural major collector. The total length of the study area is 7.2 miles. A tenth of a mile section of CR 540 runs concurrent with CR 553 within the study area.

Except for short stretch of road just north of CR 540, which has with a two-way center left turn lane, Buck Road is basically a two-lane road with shoulders. The width of the shoulders varies along the roadway, but in most places is less than five feet wide.

The curb line development is best described as rural. There are traffic signals at the intersections of CR 540, Sheep Pen Road/Elmer Road, and at Route US 40. There is an intersection control beacon and a four way stop at the intersection of Monroeville Road (CR 604); and a four way stop at the intersection of Elmer Willow-Grove Road (CR 639).

It was ascertained from local members of the audit team that:

- The section of road from just north of Olivette Road (MP 29.20) to the Gloucester County line (MP 34.26) is now in design for resurfacing and having the shoulders widened. Design was expected to be completed this February and construction is scheduled for this summer.
- There have been no changes to the traffic controls along CR 553 in the last three years.

The following sections describe the various tasks undertaken by ORA in partnership with the Safety Audit Team and summarize the findings from the audit process in a manner that will

allow the responsible agencies and personnel to prioritize implementation of safety enhancements.

Pre-Audit Data Collection and Analysis

Prior to the audit activities on site, ORA collected and reviewed traffic data and other related materials in order to assist the team in conducting the audit. A description of the materials that were reviewed is provided below.

1. Traffic Volume Data

No traffic count data was requested for the road.

2. Traffic Signal

There are three traffic signals along the roadway, at CR 540, Route US 40, and Sheep Pen Road/Elmer Road (CR 610).

3. Crash Data

SJTPO forwarded to ORA the crash reports from the New Jersey State Police for the years 2003, 2004, and 2005. A summary sheet was prepared for the three-year period. For the three-year period, a total of 127 crashes were plotted on the straight-line plan for the study section of road. Forty seven (47) crashes occurred in 2003, forty four (44) in 2004, and thirty six (36) in 2005.

The types of crashes are characterized as follows:

0-fatal crashes

35- injury crashes

92-non-injury crashes

25– right-angle type crashes –three (3) at Lawrence Corner Rd (CR 621), seven (7) at Willow Grove Road (CR 639), four (4) at Three Bridges Road, six (6) at Gardens Rd. (CR 674). No other concentrations.

19 – same-direction type crashes – Seven (7) at Almond Rd., three (3) at Dealtown Road, three (3) at Willow Grove Rd. (CR 639)

4- left turn type crashes- No concentrations.

6- side swipe type crashes- No concentrations.

45– fixed-object type crashes –five (5) between Deerfield Rd. (CR 540) and Almond Rd. (CR 540), three (3) 3/10th of a mile north of Lawrence Corner Rd. (CR 621), four (4) in the vicinity of Willow Grove Rd. (CR 639), three (3) in the vicinity of Upper Neck Road (CR 690)

1- head on type crash

10-other type crashes- No concentrations.

17 struck animal (deer) type crashes-No concentrations.

1- involving a bicyclist

A review of the crashes established the following:

- ♦ The month with the most crashes (14) was October.
- ♦ The day of the week with the most crashes (27) was Friday.
- ♦ The highest frequency of crashes (12) occurred between 6AM-7AM.
- ♦ The percentage of crashes during hours of darkness (34%) is consistent with the statewide average for county roads (approximately 30%).
- ♦ The percentage of crashes for wet surface conditions (17 %) is slightly less than the statewide average for county roads (approximately 24%).
- ♦ The percentage of crashes for snowy or icy surface conditions (19 %) is almost five times higher than the statewide average for county roads (approximately 5%).
- ♦ The percentage of crashes with injuries (27%) is consistent with the statewide

average for county roads (approximately 30%).

- ♦ The percentage of right angle type crashes (20%) is consistent with the statewide average for county roads (approximately 21%).
- ♦ The percentage of same directional crashes (15%) is just half the statewide average for county roads (approximately 29 %).
- ♦ The percentage of left-turn crashes (3 %) is just half the statewide average for county roads (approximately 6 %).
- ♦ The percentage of side- swipe type crashes (5 %) is less than half the statewide average for county roads (approximately 12%).
- ♦ The percentage of fixed-object type crashes (35 %) is almost three times the statewide average for county roads (approximately 12%).
- ♦ The percentage of bicycle type crashes (1%) is consistent with the statewide average for county roads (approximately 1%).

4. Other Information

Additional materials reviewed by ORA prior to the formal audit process included videotapes taken by A-TECH Engineering, Inc. of both directions of travel for the entire study area.

Materials listed above are included in the Appendix.

Audit

On April 2, 2007, the Safety Audit Team met in the Pittsgrove Township Municipal building to formally conduct the audit. The meeting commenced at 9:00 AM with brief statements by ORA representatives who reiterated the importance of RSAs and outlined the objectives of the safety audit. There were brief introductions by team members followed by an extensive review and discussion of materials described in the previous section. The team then drove to the Cumberland County line to begin the audit. Salem County provided a van for the team. Team members are listed below.

SAFETY AUDIT TEAM FOR CR 553

Name	Agency
Harry E. Snyder	Pittsgrove Township
Douglas Akins	Salem County
Joseph Federici	Salem County
William Sumiel	Salem County
Bill Schiavi	SJTPO
Norman Deitch	Orth-Rodgers & Associates, Inc.
George Strathern	Orth-Rodgers & Associates, Inc.

The team began at the Cumberland County line and walked north past the Schalick High School. The rest of the road was driven with the team exiting the van at various intersections and other points to better observe and comment on items.

During the field views, team members identified features on the roadway and its surrounding environment that could contribute to the occurrence or relative severity of roadway crashes. At the intersections and mid-block locations, the Audit Team identified safety deficiencies and inappropriate traffic signs, as well as other items that were felt to be inconsistent with effective road function and use. A variety of safety improvement measures were discussed with field notes and digital photographs being taken by team members.

At the completion of the audit, the team leader recapped the findings of the audit with the team.

The team leader informed the team members on the next step in the audit process; ORA will prepare a draft report summarizing the findings from the audit process and forward the report to all team members for their review and comments.

On May 17, 2007, Norman Deitch and George Strathern conducted a nighttime audit. The goal was to check the reflectivity of the street signs, pavement markings, and condition of the raised pavement markers (RPMs). In addition, the need for street lighting was checked and lights adjacent to the roadway on private property were checked to ensure that they did not create bright areas that could distract drivers. They also looked for issues that would only be apparent during hours of darkness, such as clearly defined roadway alignment, ineffective street lighting, etc.

The next section of the report summarizes the findings from the daytime and nighttime audits of Buck Road (CR 553).

Findings

The findings from the Buck Road (CR 553) safety audit are presented on the following pages in the approximate order that they were observed beginning at the Cumberland County line Road and traveling to the Gloucester County line and back.

SAFETY ISSUE		REMEDIAL ACTION	LEVEL OF EFFORT REQUIRED			POTENTIAL SAFETY BENEFIT		
			LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
1	General comment - Sign installation. Many of the signs along the road are installed as “bendaway” rather than “breakaway.” Many installed as “breakaway” are installed incorrectly with the stub too far out of the ground or on the wrong side of the post.	Consideration should be given to inventorying the method of sign installation along the entire road and taking steps to properly install all signs as “breakaway” in accordance with the most current NJDOT standards and the MUTCD.		X			X	
2	General comment- There is a lack of “JCT” and confirming route marker assemblies at almost all county route intersections	Route marker assemblies along the route be inventoried and the needed assemblies installed.		X			X	
3	Northbound just north of the Cumberland County border-“ NORTH 553” route marker assembly installed approximately three feet off of the ground and is obstructed by tree branches.	Re-install assembly at appropriate height and trim tree branches to ensure adequate visibility of the sign.	X			X		
4	Northbound just north of the Cumberland County border- “SPEED LIMIT 50”sign is worn and is obstructed by tree branches.	Replace with new sign and trim tree branches to ensure adequate visibility of the sign.	X			X		
5	Northbound just south of Morton Avenue- ‘REDUCE SPEED AHEAD” word message sign is worn.	Replace sign with speed reduction warning symbol sign (W3-5)	X			X		
6	Southbound at Morton Avenue- utility pole located close to the edge of the road. Motorist passing to the right of vehicles turning left into Morton Avenue have struck pole.	Install object marker in front of pole to warn motorist of the presence of the pole.	X				X	
7	Northbound just north of Morton Avenue- visibility of modified curve symbol warning sign is obstructed by tree branches.	Relocate sign father to the south so that it is south of the utility pole on the northeast corner of Morton Avenue.	X			X		

SAFETY ISSUE		REMEDIAL ACTION	LEVEL OF EFFORT REQUIRED			POTENTIAL SAFETY BENEFIT		
			LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
8	Northbound at Deerfield Road- CR 553 curves to the right through the intersection. Curve could be better delineated.	Install chevron alignment warning signs behind the guide rail on the northwest corner of the intersection facing northbound traffic	X				X	
9	Northbound side- curve in CR 553 reduces the visibility of traffic signal at intersection with CR 540. There is an existing "SIGNAL AHEAD" symbol warning sign along the northbound CR 553 approach to the intersection. Local team members stated that traffic sometime queue a substantial distance from the intersection to where some additional advanced warning may be beneficial.	A supplemental "SIGNAL AHEAD " warning sign and advisory distance plate be installed south of Deerfield Road facing northbound traffic.	X			X		
10	Southwest corner of Deerfield Road- damaged guide rail.	Repair guide rail.	X			X		

	SAFETY ISSUE	REMEDIAL ACTION	LEVEL OF EFFORT REQUIRED			POTENTIAL SAFETY BENEFIT		
			LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
11	<p>Deerfield Road approach to CR 553 experiences a sharp change of alignment to the right at the intersection to form a right angle type intersection. Because of the curve the visibility of the STOP sign along that approach is restricted. Local team members stated that:</p> <ul style="list-style-type: none"> Crashes have occurred in the past involving eastbound Deerfield Road motorist failing to recognize the change of alignment and leaving the road and traveling onto the northwest corner of the intersection. Crashes have occurred involving motorist's failing to stop at the intersection and striking the guide rail along the northbound side of CR 553. There is current damage to the guide rail supporting this statement. 	<ul style="list-style-type: none"> Install three chevron alignment-warning signs on the northwest corner of the intersection facing the Deerfield Road approach. Consideration be given to installing pavement marking rumble strips along the Deerfield Road approach to the intersection Repair the damaged guide rail along the northbound side of CR 553. Consideration be given to installing "STOP AHEAD" on the pavement along the Deerfield Road approach to the intersection. Vegetation and brushes located on the southwest corner of the intersection behind the guide rail be trimmed or removed to improve the visibility of the STOP sign. Replace the existing STOP sign with a 48" x 48" sign. 		X				X

SAFETY ISSUE		REMEDIAL ACTION	LEVEL OF EFFORT REQUIRED			POTENTIAL SAFETY BENEFIT		
			LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
12	Northbound north of Deerfield Road – brushes and vegetation behind guide rail limits visibility around curve.	Remove and/or trim brushes and other vegetation to improve visibility around curve.	X				X	
13	Northbound at north end of guide rail at bridge by lake-modified turn symbol warning sign with 35MPH advisory speed plate is worn.	Replace sign and advisory speed plate.	X			X		
14	Northbound approaching signal at Almond Road- white on green guide sign is worn.	Replace with new sign.	X			X		
15	Northbound at signal at Almond Road- there is not a route marker assembly- directing motorist to CR 540.	Install CR 540 route marker assembly with arrow plate.	X			X		

SAFETY ISSUE	REMEDIAL ACTION	LEVEL OF EFFORT REQUIRED			POTENTIAL SAFETY BENEFIT		
		LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
16 Some time was spent at the Almond Road intersection with the following observation made: <ul style="list-style-type: none"> Local team member stated that motorist turn into the out driveway to the Anderson store parking lot on the corner causing the signal to unnecessarily turn green to that approach. Almond Road approach-“ CR 553 NORTH & SOUTH” with arrow plates route marker assembly installed too low. Pavement markings at the intersection are in poor condition. Local team members stated that vehicles, especially trucks, turning left from the driveway to the Anderson store often experience difficulty because of the location of the stop line on the northbound CR 553 approach. Crosswalk across the Almond Road approach appears to be inappropriately located considering the location of the signal equipment and WALK-DON'T WALK indications for that crosswalk. 	<ul style="list-style-type: none"> There appears to be directional loop detectors cut into the “ out “driveway that motorist are using as a “ in” driveway. If these are working properly the false calls should not occur. Check to see that directional loops are functioning as designed. Supplement the existing “DO NOT ENTER” signs on the driveway with “ONE WAY” signs to discourage the wrong way movement. Install route marker assemblies on separate signposts at the appropriate height. Reinstall the pavement markings at the intersection. Consideration be given to relocating the stop line along the CR 553 northerly approach to the intersection farther from the intersection. Reinstall crosswalk so that it terminates closer to the poles supporting the WALK-DONT WALK signals for the crossing. Consideration be given to installing handicapped ramps at both ends of crosswalk. 		X			X	

SAFETY ISSUE		REMEDIAL ACTION	LEVEL OF EFFORT REQUIRED			POTENTIAL SAFETY BENEFIT		
			LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
	<ul style="list-style-type: none"> Almond Road approach- "STOP HERE ON RED" & "NO TURN ON RED" signs installed on same sign. Post located at existing crosswalk across Almond Road. Crosswalk across the CR 553 southbound approach to the intersection does not terminate at the handicapped ramp on the northbound side of the road. Trucks turning right from Almond Road to northbound CR 553 frequently run up on the curb to complete the turn. Almond Road approach- tree branches obstruct the visibility of near right and far right indications facing the approach. 	<ul style="list-style-type: none"> Relocate "STOP HERE ON RED" sign to stop line. Reinstall "NO TURN ON RED" sign at appropriate height or relocate onto signal pole. Reinstall crosswalk so that it terminates at handicapped ramp. Relocate the stop line along the CR 553 southbound approach farther from the intersection to better accommodate the turning vehicles. Trim tree branches to ensure adequate visibility of signal indications. 						
17	Northbound just north of Almond Road- "SPEED LIMIT 35" sign is worn.	Replace with new sign.	X			X		
18	There is a utility pole (# B8710) on the northwest corner of Dealtown Road. Trucks turning left from CR 553 onto Dealtown Road are at risk of striking pole.	Install object marker in front of pole facing the left turning traffic.	X			X		
19	The speed limit of CR 553 changes from 35 MPH to 50 MPH south of the Schalick High School. It has been suggested by local team members that the 35 MPH speed limit be extended to north of the school property.	Consideration be given to extending the 35 MPH zone to north of the Schalick High School Property.	X			X		
20	Southbound north of Dealtown Road- "SPEED LIMIT 35" sign is worn	Replace with new sign.	X			X		

SAFETY ISSUE		REMEDIAL ACTION	LEVEL OF EFFORT REQUIRED			POTENTIAL SAFETY BENEFIT		
			LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
21	Northbound in front of house number 682- inlet without bicycle safe grate.	Replace with bicycle safe grate.	X			X		
22	Northbound opposite house number 707- inlet without bicycle safe grate.	Replace with bicycle safe grate.	X			X		
23	Between Dealtown Road to just north of the driveway to the Schalick High School- two way center left turn lane with no signing for the left turn lane.	Install the appropriate signing for the two way left turn lane.	X			X		
24	Northbound there is a utility pole approximately 200 feet north of the northerly driveway to the Schalick High School that is located approximately at a point where the road narrows.	Install object marker in front of pole facing northbound traffic.	X			X		
25	Along both CR 553 approaches to CR 674- local officials stated that there use to be route marker assemblies directing traffic to RT 55.	Re-install route marker assemblies to RT 55 along both CR 553 approaches to CR 674.	X			X		
26	CR 674 intersection-utility poles on three corners of the intersection have evidence of being struck by trucks turning at the intersection.	Consideration be given to widening the intersection and installing larger corner radii on all corners of the intersection to accommodate the trucks turning at the intersection. A possible alternative would be to contact the utility companies regarding the relocation of the poles.			X		X	
27	Northwest corner of CR 674- inlet with grate that is not bicycle safe.	Replace with bicycle safe grate.	X			X		
28	CR 674 intersection- there is not a luminaire at the intersection.	Consideration be given to installing a luminaire at the intersection.	X			X		
29	Northbound north of CR 674- "REDUCE SPEED ADEAD" sign is damaged.	Replace with new warning sign W3-5 or W3-5a.	X			X		
30	Intersection of Sheep Pen Road- near left signal for Sheep Pen Road is miss - aimed.	Re-aim near left signal facing the Sheep Pen Road approach to the intersection.	X				X	

	SAFETY ISSUE	REMEDIAL ACTION	LEVEL OF EFFORT REQUIRED			POTENTIAL SAFETY BENEFIT		
			LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
31	Local team members stated that the traffic signal at the Sheep Pen Road intersection does not turn green to the actuated approaches during the evening hours. Delays become so long that motorists who want to turn left at the intersection turn right and then execute a "U" turn.	The responsible maintenance forces should inspect the signal installation and correct any deficiencies.	X				X	
32	The Sheep Pen Road approach to the intersection experiences a sharp horizontal curve to the left approaching CR 553 limiting the visibility of the two signal heads facing that approach.	Consideration be given to installing a clamp-mounted signal facing the Sheep Pen Road approach on the southwest corner of the intersection or the southeast corner of the intersection.	X			X		
33	There is an existing passing zone through the intersection of McKishen Road and park area opposite McKishen Road. Local officials suggested that the area be evaluated for possible closure of the passing zone.	Centerline markings in the vicinity of McKishen Road be evaluated for possible closure of the passing zone.		X			X	
34	Northbound just north of McKishen Road-inlet with grate that is not bicycle safe.	Replace with bicycle safe grate.	X			X		
35	CR 621 intersection- trees on the southeast corner of the intersection limit the corner sight distance across that corner of the intersection.	Consideration be given to trimming and/or removal of trees on the southeast corner of the intersection to improve sight distance across that corner of the intersection.		X			X	
36	Intersection of CR 639 has four way stop control. There is not a "4-WAY" plate under the STOP sign facing northbound CR 553 traffic.	Install missing "4-WAY" plate.	X			X		

SAFETY ISSUE		REMEDIAL ACTION	LEVEL OF EFFORT REQUIRED			POTENTIAL SAFETY BENEFIT		
			LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
37	Northbound opposite Madison Avenue- “NO PASSING ZONE” pennant sign installed on left side of road. If used this sign should be at the beginning of the no passing zone.	Remove sign. Install sign at beginning of no passing zone if deemed to be needed.	X			X		
38	Northbound approaching RT 40- There is a “DIP” sign with advisory speed plate. Dip condition has been corrected.	Remove “DIP” sign, advisory speed plate and post.	X			X		
39	Northbound side north of RT 40- “SPEED LIMIT 50” sign is worn.	Replace with new sign.	X			X		
40	Northbound farther north of RT 40- “SPEED LIMIT 50” sign is worn.	Replace with new sign.	X			X		
41	Both CR 553 approaches to the intersection of Three Bridges Road- crossroad symbol warning signs without supplemental street nameplates.	Consideration be given to installing supplement street nameplates below the existing crossroad symbol warning signs.	X			X		
42	Southbound approximately 1000 feet north of Three Bridges Road- empty signpost.	Remove signpost.	X			X		
43	There is not a luminaire at the Three Bridges Road intersection	Consideration be given to installing a luminaire at the intersection.	X				X	
44	Three Bridges Road approaches to CR 553- the suggestion has been made that the existing STOP signs at the intersection be replaced with 48” x 48” signs.	Install 48” x 48” STOP signs at the intersection.	X			X		
45	Southbound - “SPEED LIMIT 50” about half way between Three Bridges Road and RT 40 is worn.	Replace with new sign.	X			X		
46	Southbound south of RT 40- “NO PASSING ZONE” pennant sign installed on left side of road. If used this sign should be at the beginning of no the passing zone.	Remove sign. Install sign at beginning of no passing zone if deemed to be needed.	X			X		

	SAFETY ISSUE	REMEDIAL ACTION	LEVEL OF EFFORT REQUIRED			POTENTIAL SAFETY BENEFIT		
			LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
47	Section of road south of RT 40- posted 50 MPH speed limit. Curb line development may justify a lower speed limit.	Consideration be given to conducting a speed limit survey along this section of road to determine if a change to the speed limit is warranted.		X			X	
48	Southbound north of McKishen Road- rough road condition. Motorist observed driving closer to the center of the road then normal to avoid the uneven pavement.	Consideration be given to repairing this section of road.		X			X	
49	Southbound approaching Sheep Pen Road- signal ahead warning sign is located too close to the intersection.	Relocate signal ahead warning sign farther from the intersection.	X			X		
50	Southbound approaching Olivette Road- inlets with grates that are not bicycle safe located both north and south of the intersection.	Replace with grates that are bicycle safe.	X			X		
51	Porchtown Road approach to CR 553- Approach is STOP controlled. Suggestion has been made that a stop ahead warning sign was needed. Also triangular island at intersection could be better delineated.	Consideration be given to installing a stop ahead warning sign along the Porchtown Road approach to the intersection. Delineators be installed on the triangular island.	X			X		
	NIGHTTIME FIELD VIEW IDENTIFIED THE FOLLOWING SAFETY ISSUES							
52	Intersection with Porchtown Road (CR 613)- there is not a luminaire at the intersection.	Consideration be given to installing a luminaire at the intersection.	X				X	
53	Northbound approaching CR 613- there is not a "JCT 613" route marker assembly.	Install missing route marker assembly.	X			X		

SAFETY ISSUE		REMEDIAL ACTION	LEVEL OF EFFORT REQUIRED			POTENTIAL SAFETY BENEFIT		
			LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
54	Along the Porchtown Road approach to CR 553- there is a “ KEEP RIGHT” sign installed with the “DO NOT ENTER” on the left side of the road. This is inappropriate as there is two-way traffic to the right of the triangular island.	Remove “KEEP RIGHT” sign.	X			X		
55	CR 553 makes a right turn at the intersection of Sheep Pen Road-Elmer Road (CR 610). The only signing indicating this turn to northbound motorist is a route marker assembly on the corner.	An advance white on green directional sign incorporating a “NORTH 553” shield and the name of a town be installed in advance of the intersection with the bottom line of copy reading “SECOND RIGHT”.	X				X	
56	Northbound in the vicinity of McKishen Road- tree branches obstructing “SPEED LIMIT 50” sign.	Trim tree branches.	X			X		
57	Northbound approaching Lawrence Corner Road - tree branches obstructing crossroad symbol warning sign.	Trim tree branches.	X			X		
58	Pavement markings north of Lawrence Corner Road are in very poor condition.	Consideration be given to reinstalling pavement markings.	X			X		
59	Northbound approaching RT 40- signal ahead warning sign is worn.	Replace with new sign.	X			X		
60	Northbound approaching CR 604- direction sign is worn.	Replace with new sign.	X			X		
61	Northbound just north of CR 604- confirming route marker assembly “NORTH 553” is worn.	Replace with new route marker assembly.	X			X		
62	Southbound just south of Gloucester County line-“SPEED LIMIT 50” sign is worn.	Replace with new sign.	X			X		
63	Southbound just south of Rt 40- tree branches obstructing “SOUTH 553” confirming route marker assembly.	Trim tree branches.	X			X		
64	Southbound side- mile marker 31 is installed too low.	Reinstall sign at appropriate height.	X			X		

SAFETY ISSUE		REMEDIAL ACTION	LEVEL OF EFFORT REQUIRED			POTENTIAL SAFETY BENEFIT		
			LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
65	Southbound in the vicinity of McKishen Road- "REDUCED SPEED AHEAD" sign is worn.	Replace with speed reduction warning sign.	X			X		
66	Southbound north of CR 610- 'SPEED LIMIT 35" sign is worn.	Replace with new sign.	X			X		
67	CR 553 makes a left turn at the intersection of Sheep Pen Road-Elmer Road (CR 610). The only signing indicating this turn to southbound motorist is a route marker assembly on the far right corner of the intersection.	An advance white on green directional sign incorporating a "SOUTH 553" shield and the name of a town be installed in advance of the intersection with the bottom line of copy reading "NEXT LEFT". Also a "SOUTH 553" route marker assembly with an arrow to the left be installed on the far left corner of the intersection facing the southbound CR 553 approach.	X				X	
68	Southbound just south of intersection with CR 610- there is not a confirming route marker assembly.	Install confirming route marker assembly "SOUTH 553".	X			X		

Recommendations

As stated earlier, the intent of the road safety audit process is to conduct a formal examination of highway features and the surrounding environment that increase the potential for crashes and identify countermeasures that will reduce (or eliminate) the probability of such crashes. The safety issues identified during the conduct of this audit and included in this report have been organized to provide the convenience and flexibility necessary to allow the implementation of the safety improvements as time and budget limitations allow. To the extent possible, the findings have been separated into line items so that the improvements can be implemented independently as appropriate. Clearly, consolidating a number of the safety recommendations will reduce the overall cost of improvements. We recommend that the appropriate management staff review the findings and decide which items can be completed in the immediate future (within one year). Many of the deficiencies can be corrected in the short term if the roadway owners dedicate both the time and financial resources to the task. The Level of Effort (an estimate of expenditures and man hours) indicated on the finding sheets of the report represent the team's best effort at categorizing each item.

Unfortunately, with many roads and many of the audits we have conducted, there is no easy quick fix solution to many of the crash patterns. This is particularly true along this road. The development of a signing contract to replace all the worn signs and to install the additional signing noted in the various items probably has the greatest potential for reducing the crash experience along the road. Other individual items where the remedial action was trimming of trees, while important items, do not lend themselves to the development of a contract nor should their implementation be delayed until a contract could be developed and awarded.

The need for a laminar at some intersections are another example of a remedial action that should be addressed out side of a safety contract.

While the safety audit focuses on roadway features, enforcement is still a crucial component of safety on a road. Enforcement discourages the motorist from becoming lax in obeying or observing the traffic regulations along the road. Just as resources must be allocated to the physical improvements of the road, they must also be allocated to enforcement to maintain the safe operation of the road.

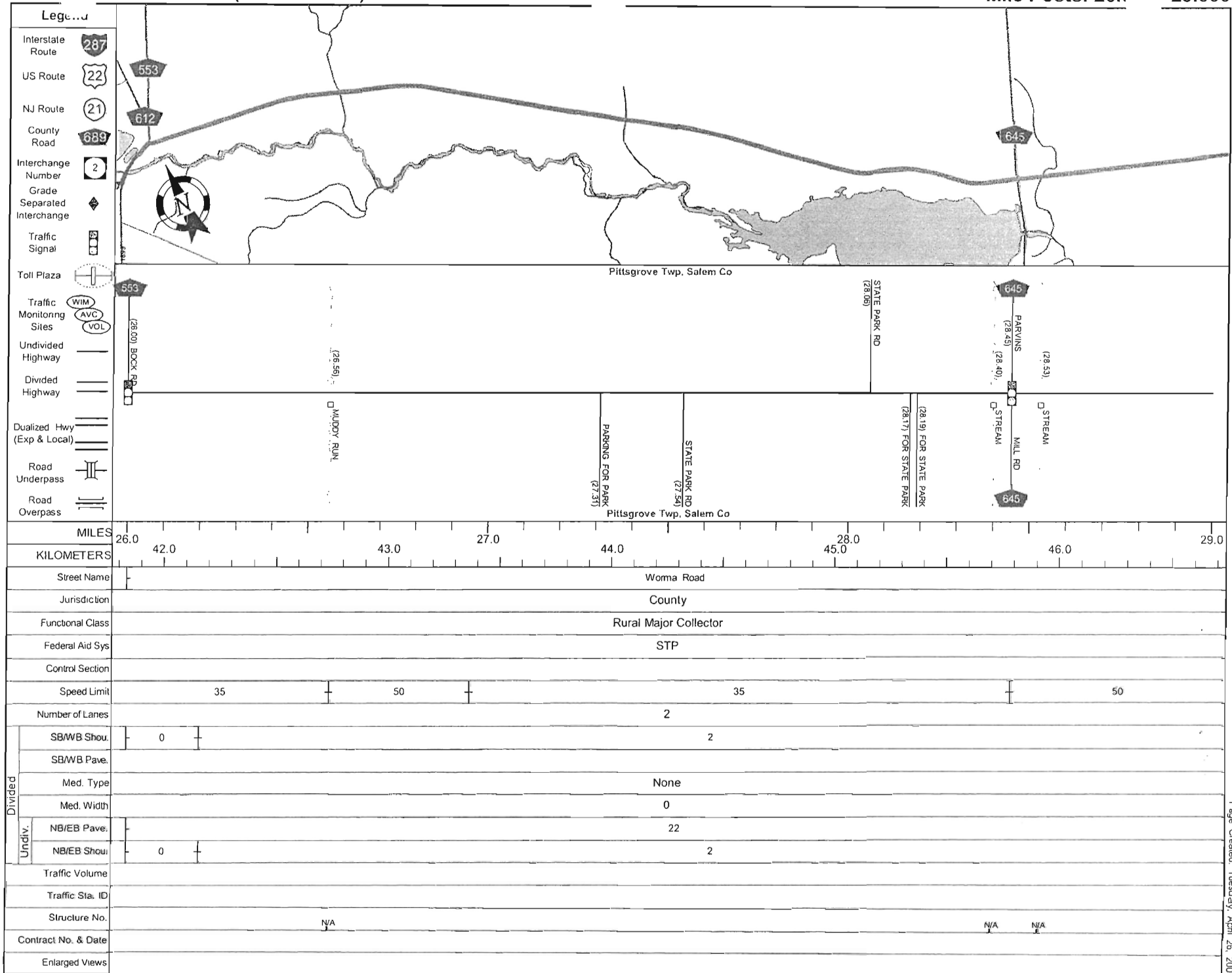
The opinions found in the findings of this Safety Audit report are those of the Safety Audit Team, as a whole, and not necessarily the opinions of the SJTPO or the individual team members.

Appendix

- Straight-line diagram of Buck Road (CR 553).
- Straight-line plan on which are plotted crashes
- Crash Data Summary Sheets
- Traffic count
- Crash Data Charts
- Photographs

ROUTE 540 (West to East)

Mile Posts: 26.0 - 29.000

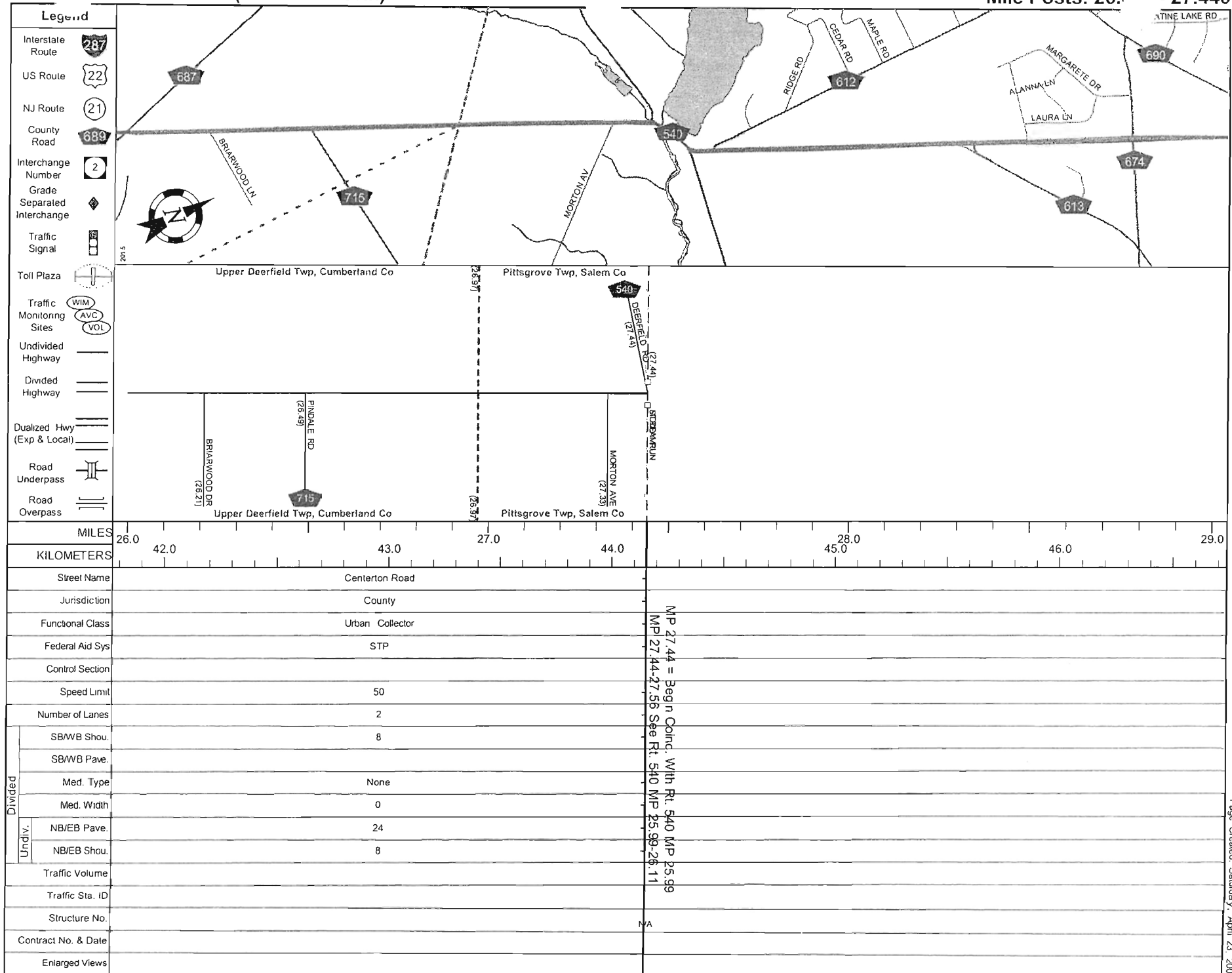


SRI = 00000540__

Date last inventoried: March 2004

ROUTE 553 (South to North)

Mile Posts: 26.0 - 27.440

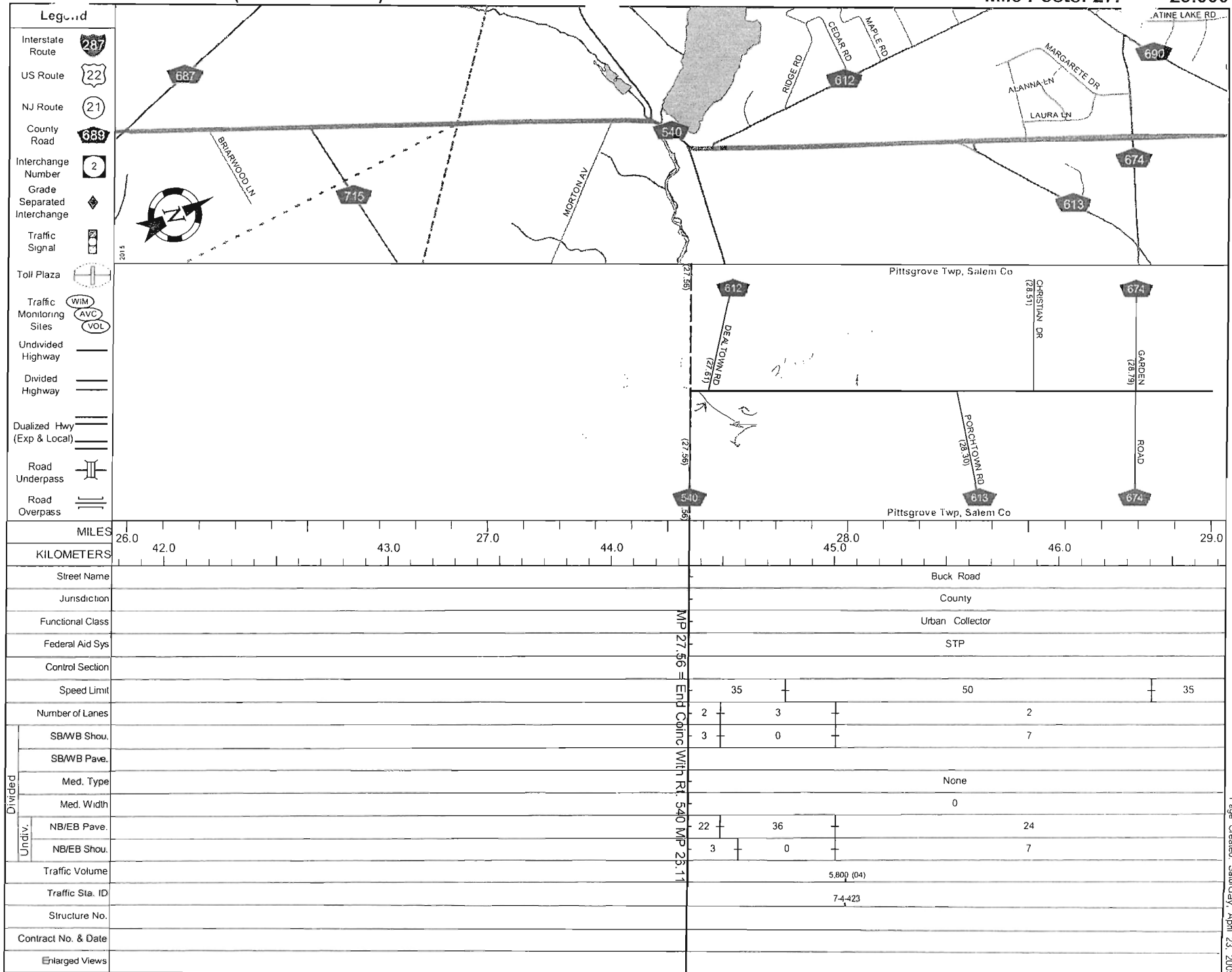


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Date last inventoried: March 2004

ROUTE 553 (South to North)

Mile Posts: 27.1 - 29.000

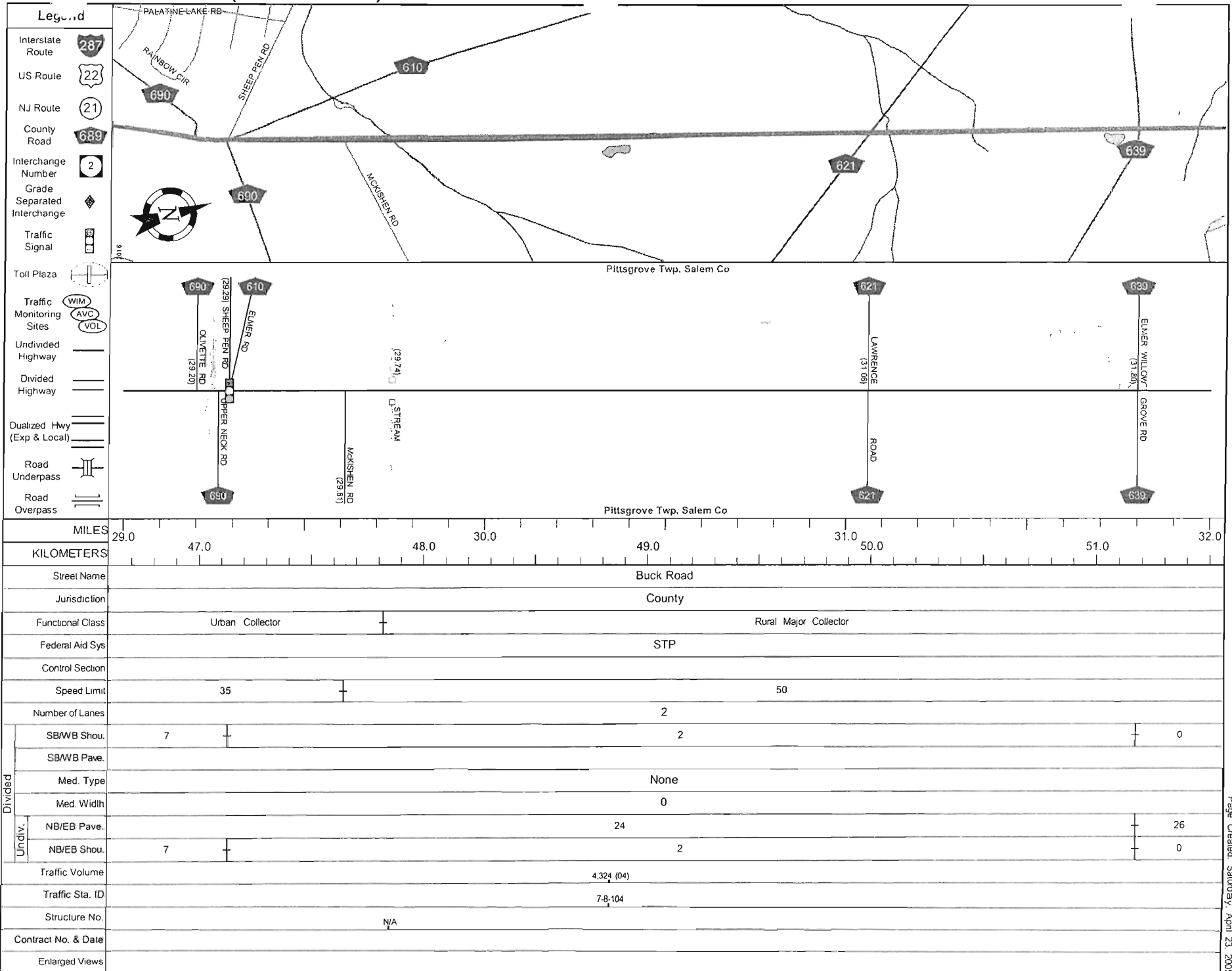


SRI = 00000553__

Date last inventoried: March 2004

ROUTE 553 (South to North)

Mile Posts: 29.7 - 32.000



SRI = 0000553__

Date last inventoried: March 2004

Mile Posts: 32.' - 35.000

Legend	
Interstate Route	
US Route	
NJ Route	
County Road	
Interchange Number	
Grade Separated Interchange	
Traffic Signal	
Toll Plaza	
Traffic Monitoring Sites	WIM AVC VOL
Undivided Highway	
Divided Highway	
Dualized Hwy (Exp & Local)	
Road Underpass	
Road Overpass	

MILES		KILOMETERS	
32.0	52.0	53.0	54.0
33.0	54.0	55.0	56.0
34.0	55.0	56.0	57.0
35.0	56.0	57.0	58.0

Street Name	Jurisdiction	Functional Class	Federal Aid Sys	Control Section	Speed Limit	Number of Lanes	SBWB Shou.	SBWB Pave.	Med. Type	Med. Width	NB/EB Pave.	NB/EB Shou.	Traffic Volume	Traffic Sta. ID	Structure No.	Contract No. & Date	Enlarged Views
Buck Road	County	Rural Major Collector	STP		50	2	0	3	None	0	26	0	5,092 (04)	7-4-424	N/A		
					45	2	2	2									

Divided	SBWB Shou.	SBWB Pave.	Med. Type	Med. Width	NB/EB Pave.	NB/EB Shou.
Divided	0	3	None	0	26	0
Undiv.	0	3			26	0

Traffic Volume	Traffic Sta. ID	Structure No.	Contract No. & Date	Enlarged Views
5,092 (04)	7-4-424	N/A		

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SRI = 00000553

Date last inventoried: March 2004

BUCK ROAD (CR 553)
PITTSBORO, UPPER PITTSBORO TOWNSHIPS
CRASH SUMMARY 2003-2005
TOTAL-127 CRASHES

Month

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<u>12</u>	<u>10</u>	<u>6</u>	<u>4</u>	<u>10</u>	<u>6</u>	<u>5</u>	<u>5</u>	<u>12</u>	<u>14</u>	<u>6</u>	<u>12</u>

Time of Day				Day of Week	
AM	Number of Crashes	PM	Number of Crashes		Number of Crashes
Midnight - Noon		Noon - Midnight			
Midnight – 1:00	1	12:00-1300	4	Monday	14
1:00 – 2:00	0	1300-1400	7	Tuesday	22
2:00 – 3:00	2	1400-1500	7	Wednesday	23
3:00 – 4:00	2	1500-1600	9	Thursday	15
4:00 – 5:00	3	1600-1700	5	Friday	27
5:00 – 6:00	5	1700-1800	7	Saturday	12
6:00 – 7:00	12	1800-1900	7	Sunday	14
7:00 – 8:00	10	1900-2000	4		
8:00 – 9:00	8	2000-2100	5		
9:00 – 10:00	4	2100-2200	5		
10:00 – 11:00	2	2200-2300	6		
11:00 – 12 Noon	10	2300-2400	2		

DAY 83
NIGHT 44
UNKNOWN

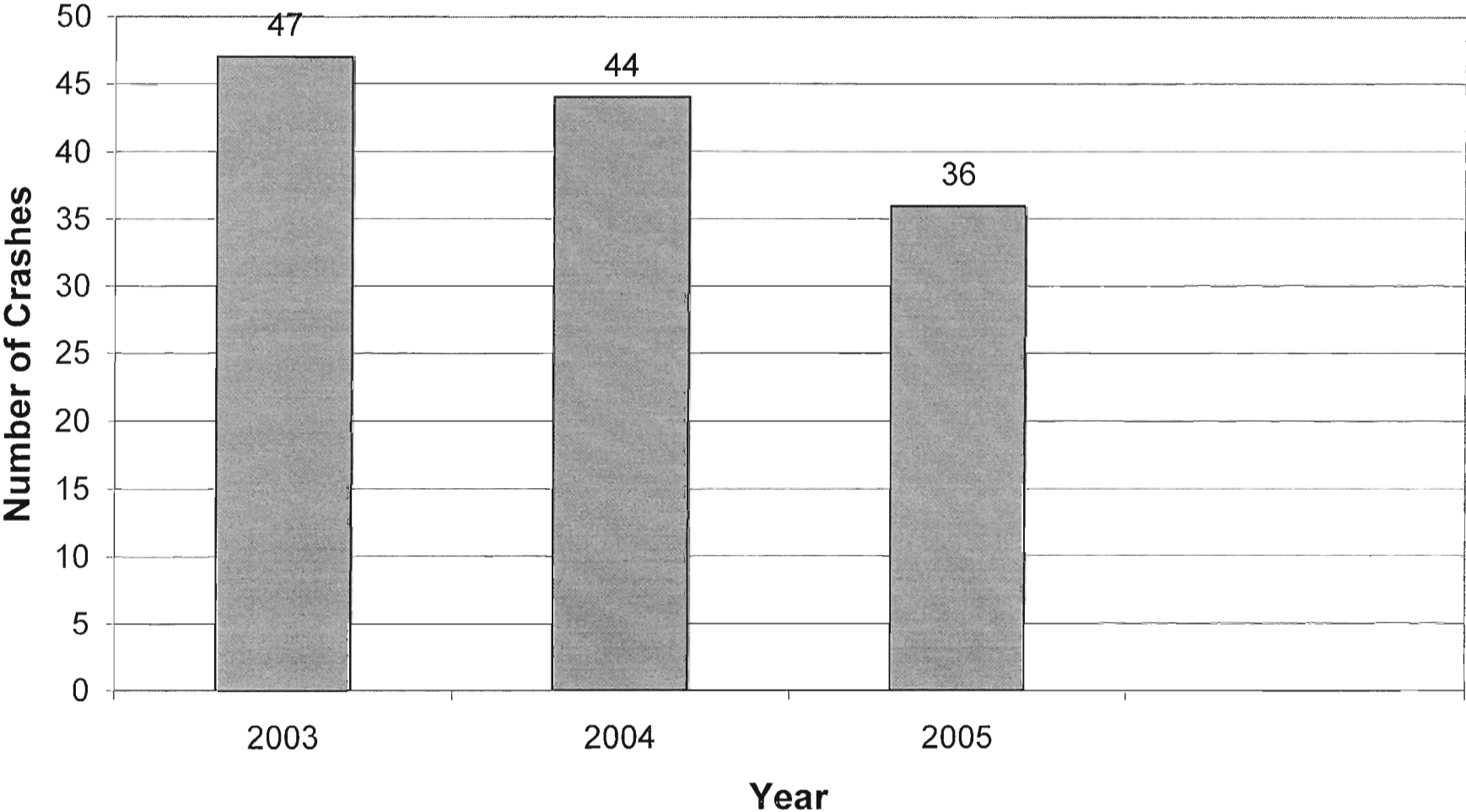
DRY 80 WET 22 SNOWY 11 ICY 14 OTHERS ____

CLEAR 100 RAIN 18 SNOW 9 FOG

INJURY 35 NON-INJURY 92 FATAL 0

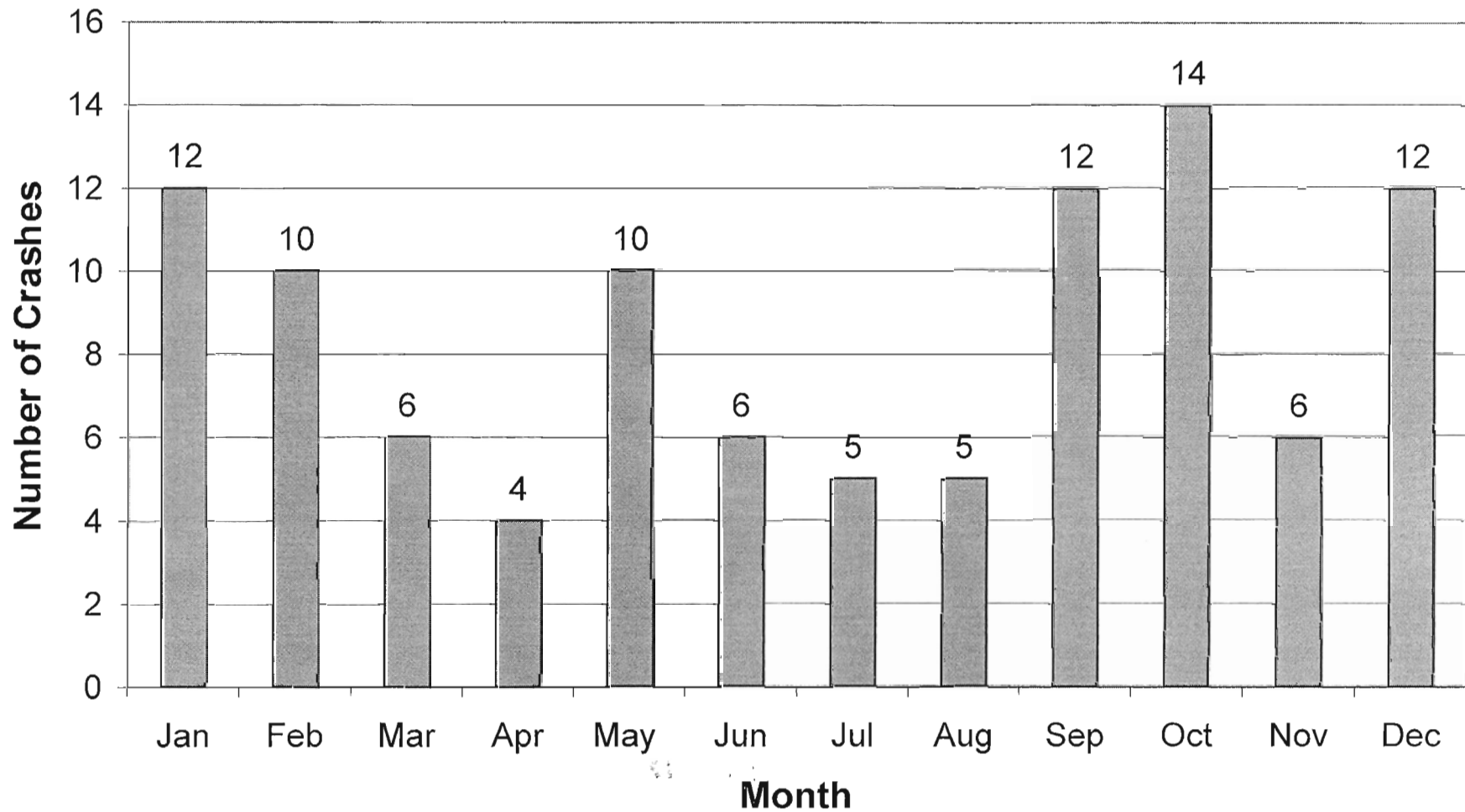
Right Angle	Same Direction	Left Turn	Right Turn	Side Swipe
<u>25</u>	<u>19</u>	<u>4</u>	<u>0</u>	<u>6</u>
Fixed Object	Head On	Other	Struck Deer	Bike
<u>45</u>	<u>1</u>	<u>9</u>	<u>17</u>	<u>1</u>

Buck Road (CR 553)
3 Year Trend

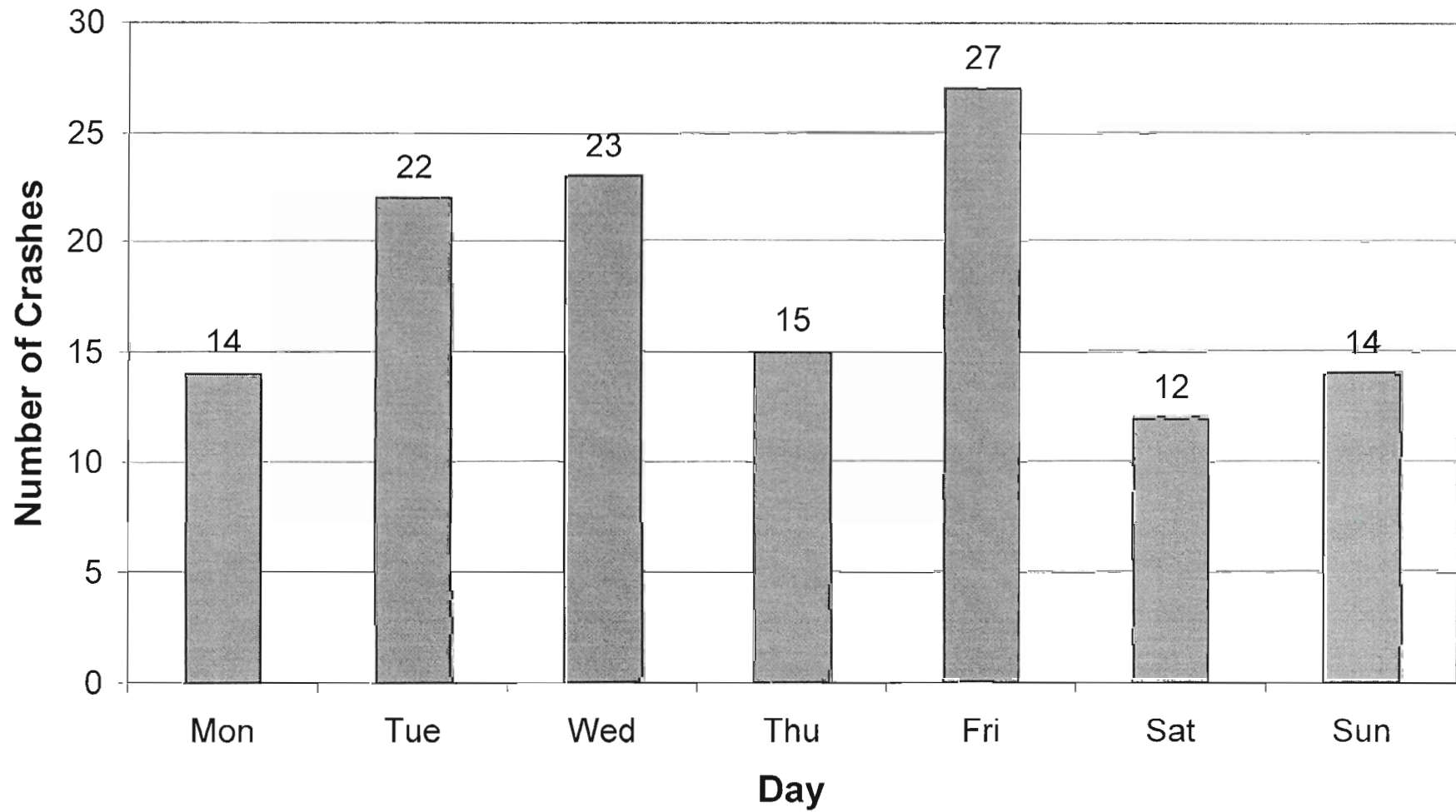


Buck Road (CR 553)

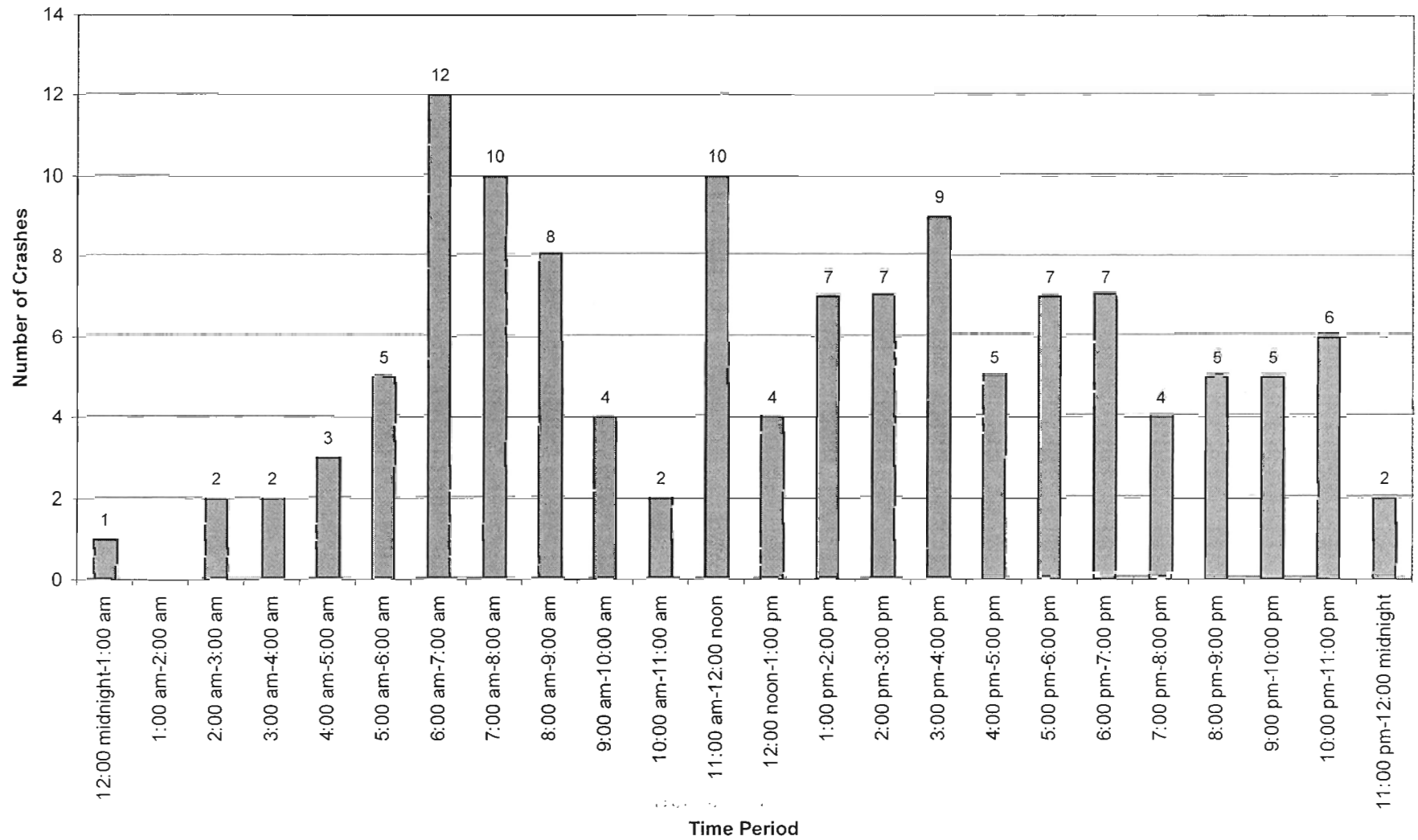
Crash Occurrence by Month



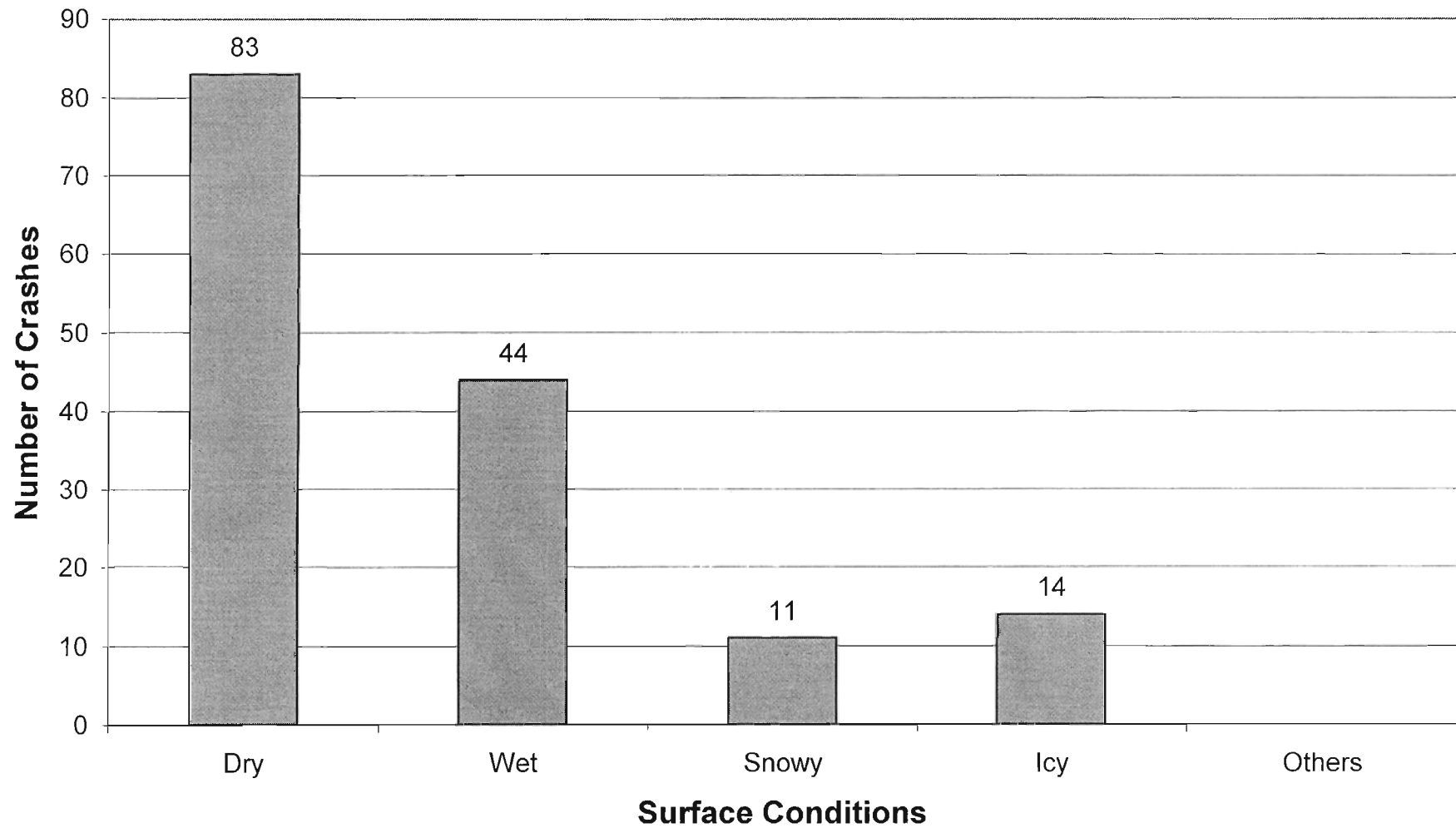
Buck Road (CR 553)
Crash Occurrence by Day of Week



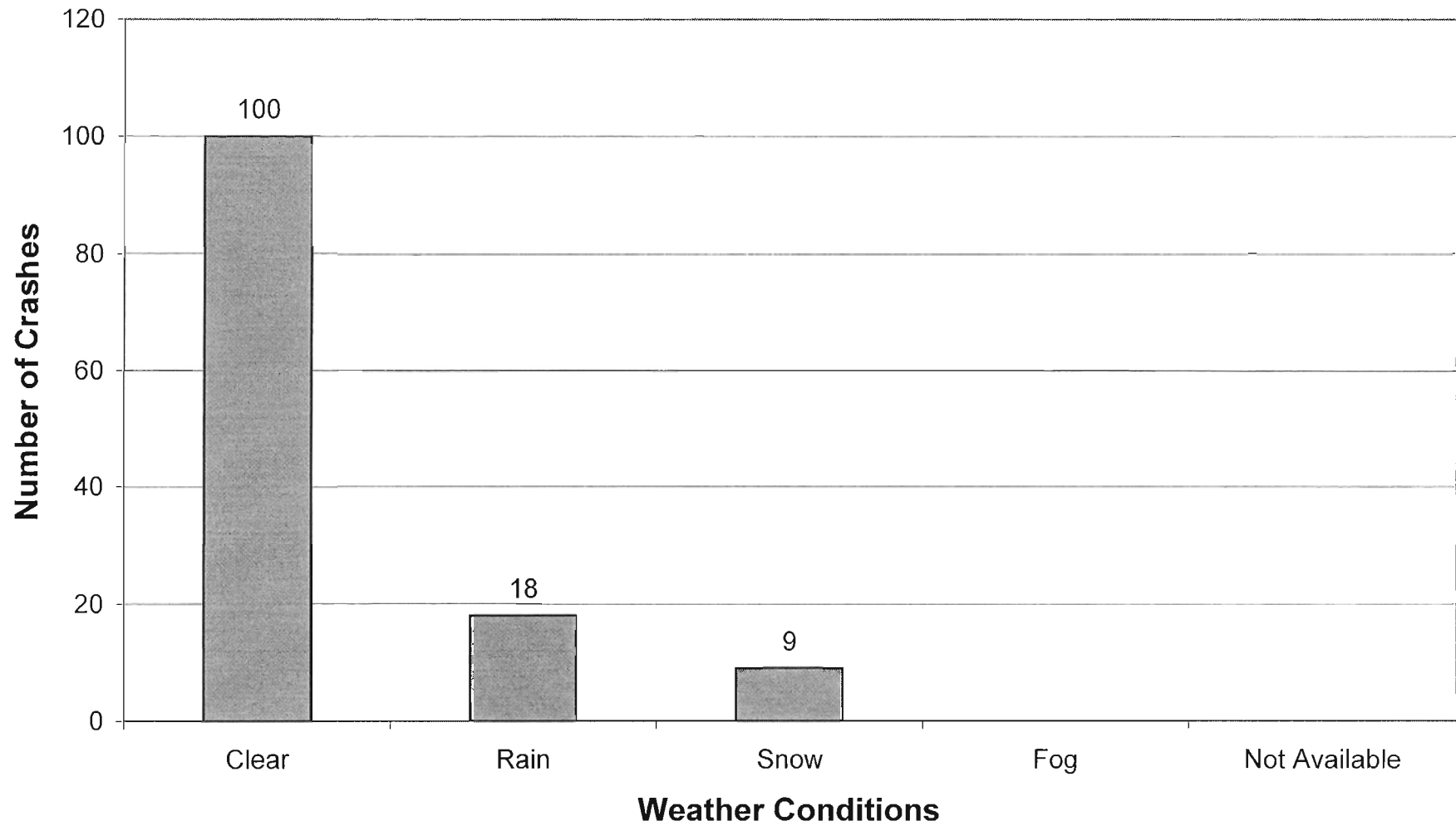
Buck Road (CR 553)
Crash Occurrence by Time of Day



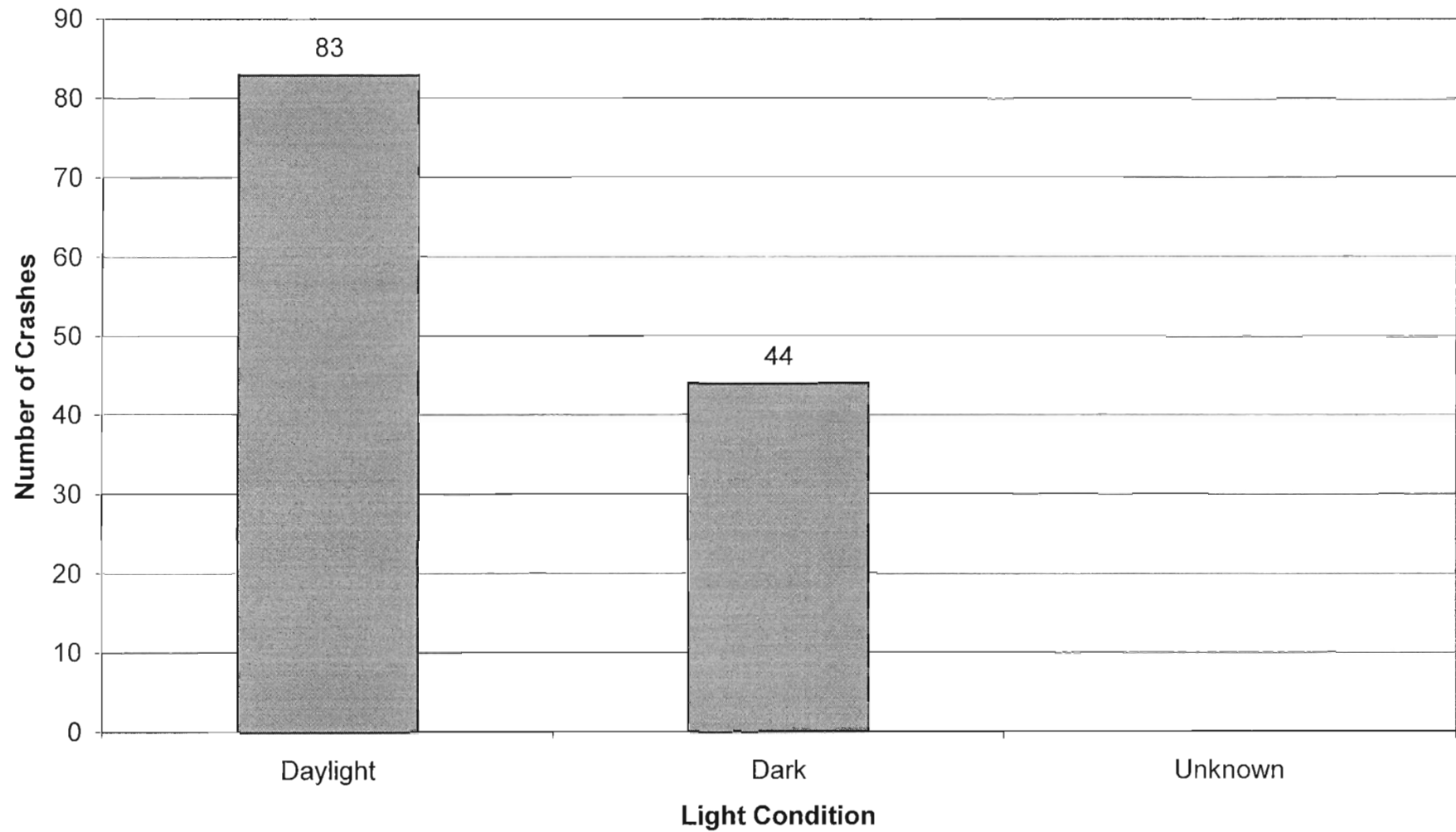
Buck Road (CR 553)
Crash Occurrence by Surface Conditions



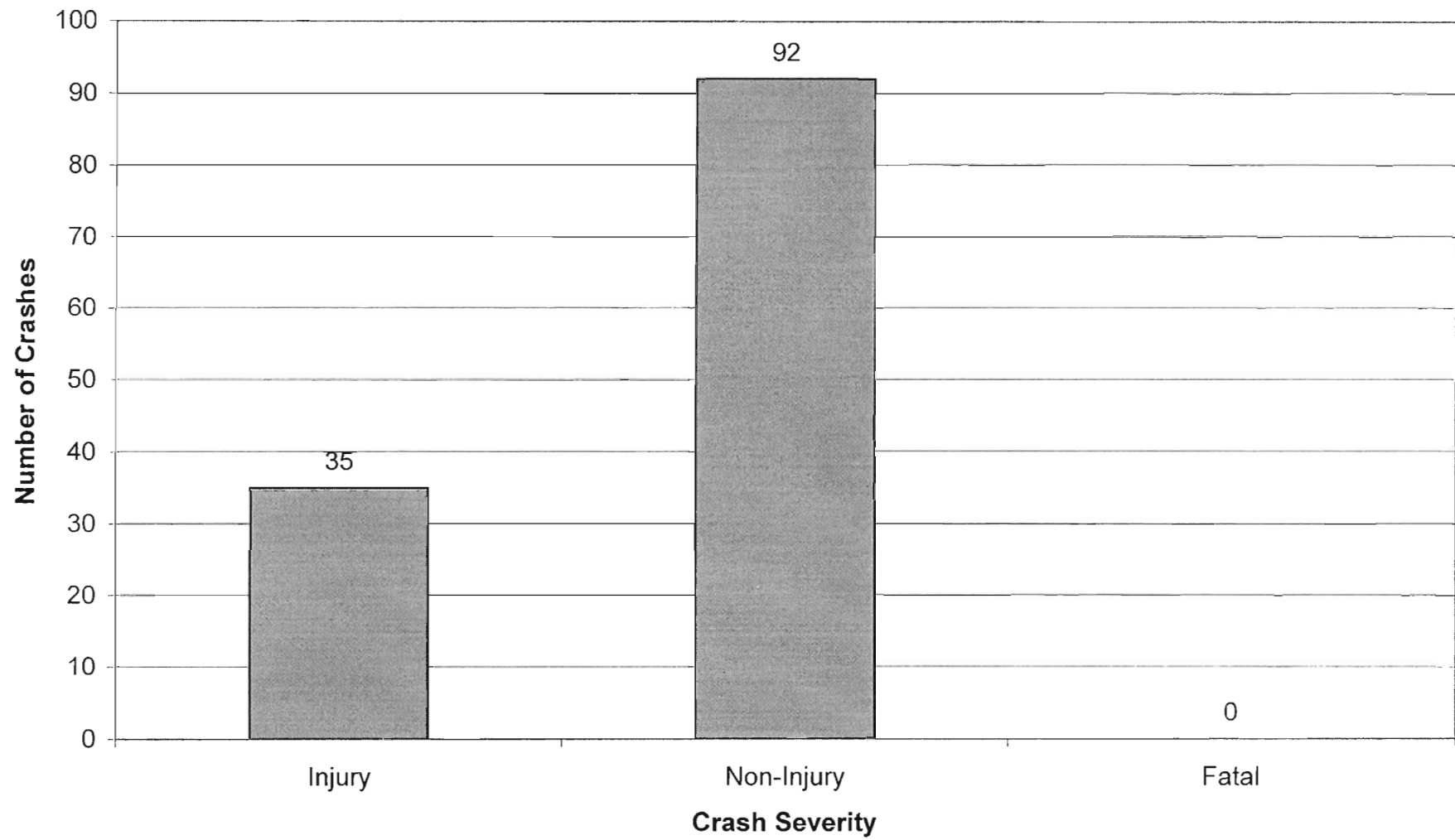
Buck Road (CR 553)
Crash Occurrence by Weather Conditions



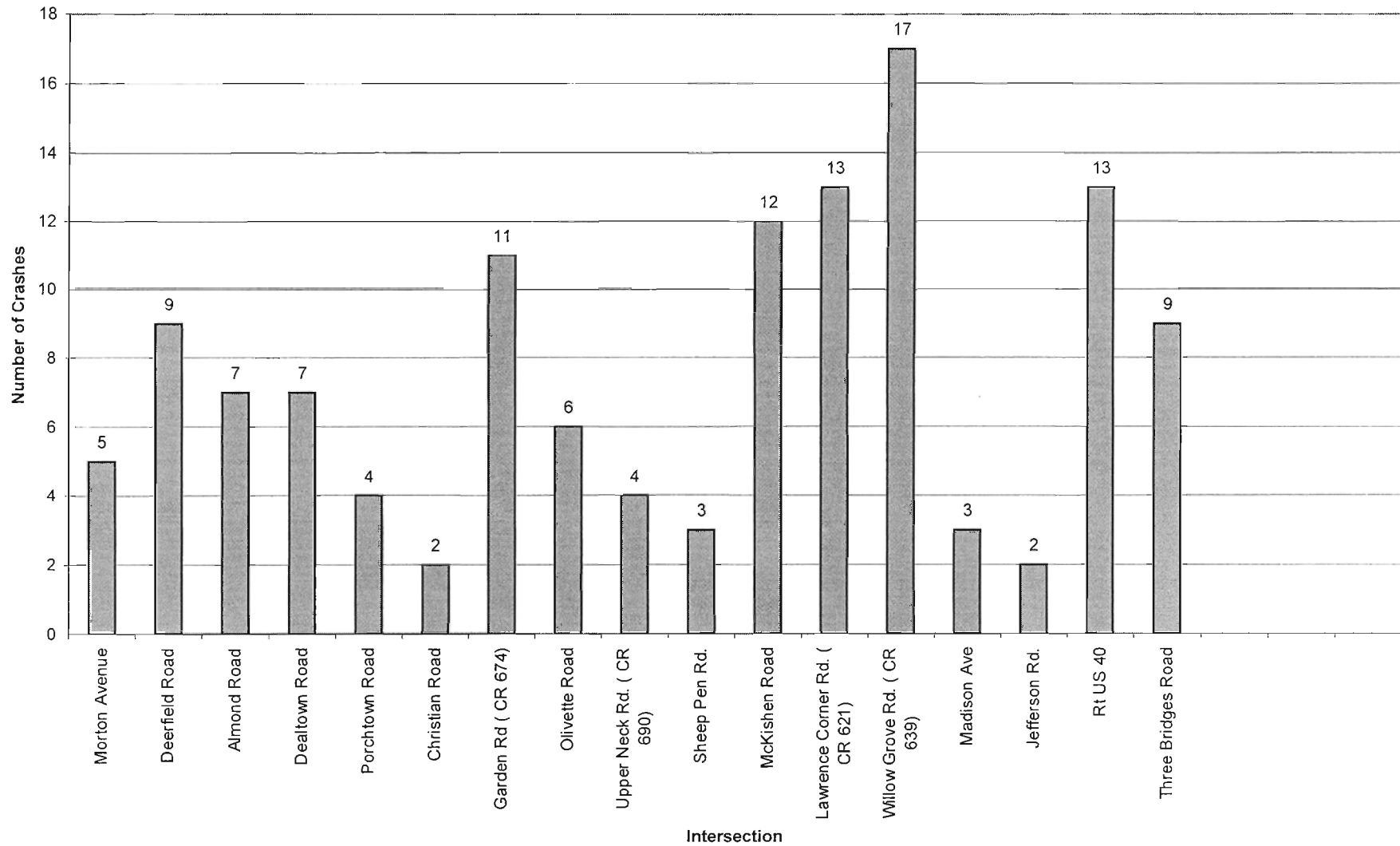
Buck Road (CR 553)
Crash Occurrence by Light Condition



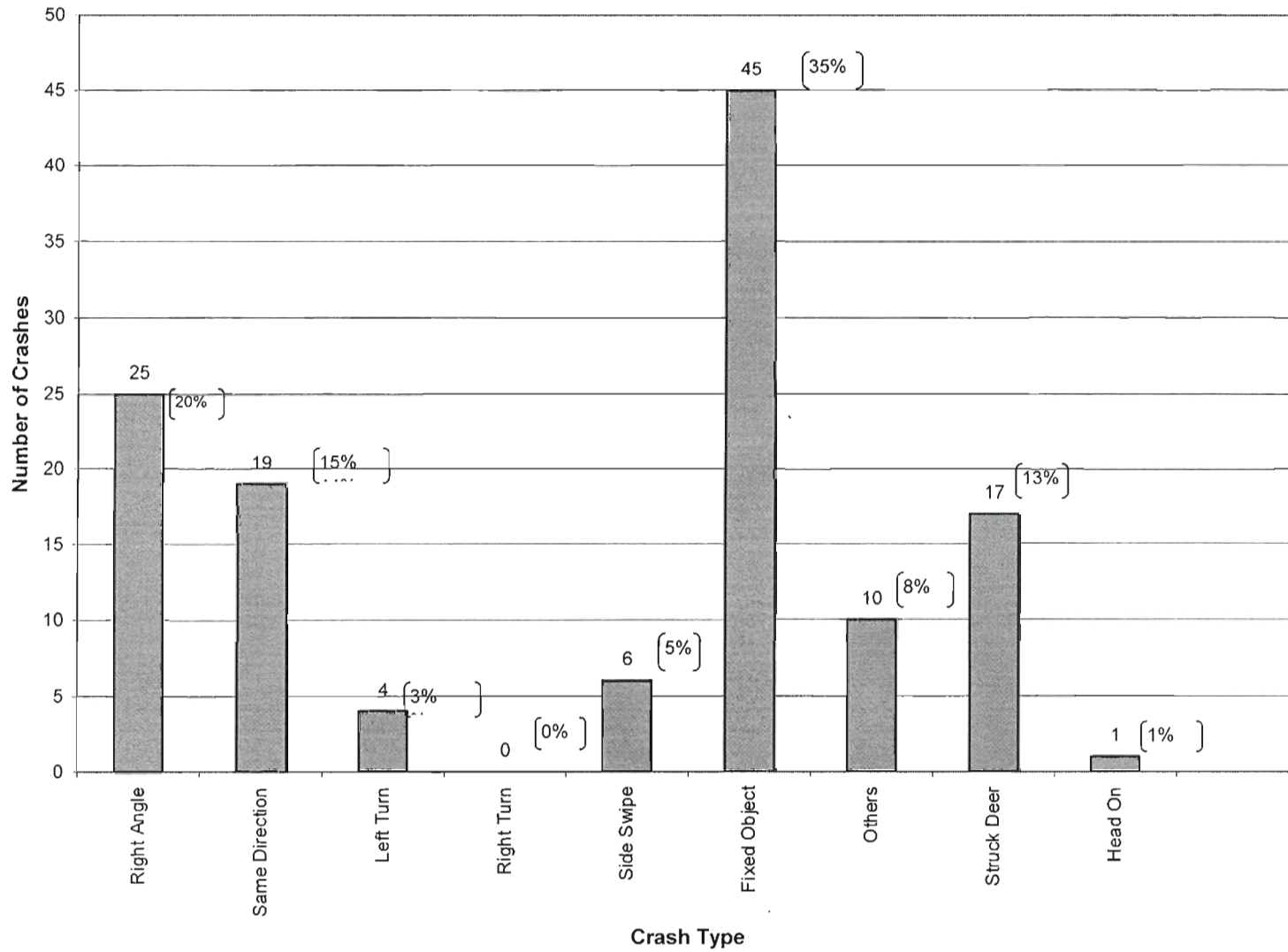
Buck Road (CR 553)
Crash Severity



Buck Road (CR 553)
Spot Location of Crashes (Proximity to Nearest Intersection)



Buck Road (CR 553)
Crash Type



CR 553 4/02/07



P4010001.JPG



P4010002.JPG



P4010003.JPG



P4010004.JPG

CR 553 4/02/07



P4010005.JPG



P4010006.JPG



P4020007.JPG



P4020008.JPG

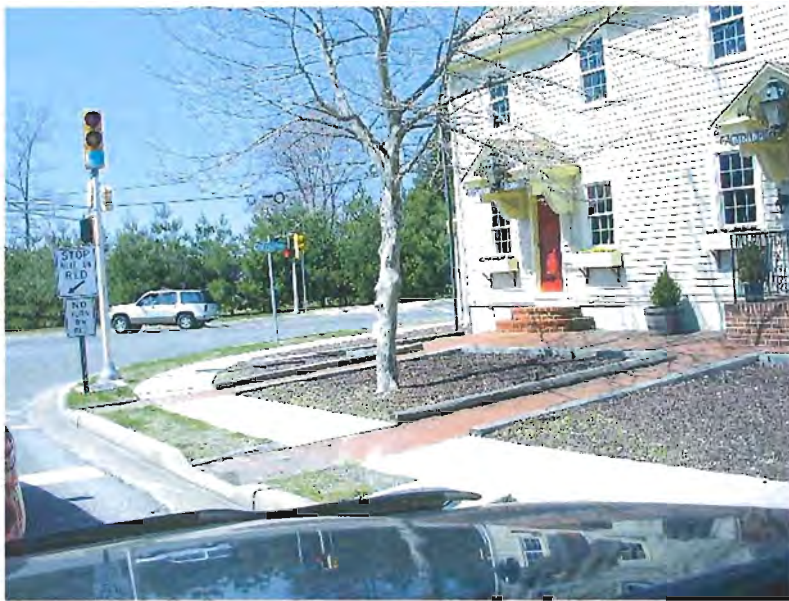
CR 553 4/02/07



P4020009.JPG



P4020010.JPG



P4020011.JPG



P4020012.JPG

CR 553 4/02/07



P4020013.JPG



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P4020015.JPG



P4020016.JPG

CR 553 4/02/07



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P4020018.JPG